Title (en)

Process for the oxidative purification of nitrogen oxides containing exhaust gases.

Title (de)

Verfahren zur oxidativen Reinigung von Stickoxide enthaltenden Abgasen.

Title (fr)

Procédé pour la purification oxidative de gaz d'échappement contenant des oxides d'azote.

Publication

EP 0548499 A1 19930630 (DE)

Application

EP 92118162 A 19921023

Priority

DE 4136183 A 19911102

Abstract (en)

[origin: US5366711A] A process is described for the removal of nitrogen oxides from waste gases with the recovery of nitric acid or a nitrate solution. The waste gas is reacted with hydrogen peroxide in an amount appropriate to the desired degree of removal of nitrogen oxides, on a catalyst, at a temperature of less than 800 DEG C., preferably in the range of 20 DEG to 100 DEG C., to give the valuable product, nitric acid or a nitrate solution. This may be done in accordance with the invention by bringing the hydrogen peroxide as a solution, i.e., in the liquid phase, into contact with the catalyst through which the waste gas is flowing. The reaction product is either utilized in a gaseous form or processed to nitric acid or a nitrate solution. Alternatively, the hydrogen peroxide may be introduced in a gaseous form, using a honeycombed catalyst, and wherein the hydrogen peroxide is present in at least one half of the stoichiometrically determined amount. Regardless of whether the hydrogen peroxide is introduced in a liquid or vapor form, the resulting nitric acid solution may be scrubbed, preferably with a nitrate salt solution, to provide the concentrated product.

Abstract (de)

Es wird, in Weiterbildung des Verfahrens gemäß Patentanmeldung P 40 15 284.7-43, ein Verfahren zur Entfernung von Stickstoffoxiden aus Abgasen unter Gewinnung von Salpetersäure oder einer Nitratlösung angegeben. Das Abgas wird mit Wasserstoffperoxid in einer dem gewünschten Entstickungsgrad angemessenen Menge an einem Katalysator bei Temperaturen von z. B. 20 bis 100° C zu dem Wertstoff Hydrogennitrat umgesetzt. Dazu bringt man das Wasserstoffperoxid als Lösung, also in flüssiger Phase, mit dem vom Abgas durchströmten Katalysator zusammen. Das Umsetzungsprodukt wird entweder gasförmig verwertet oder nach an sich bekannten Maßnahmen zu Salpetersäure oder einer Nitratlösung verarbeitet. <IMAGE>

IPC 1-7

B01D 53/36; C01B 21/38

IPC 8 full level

B01D 53/56 (2006.01); **B01D 53/34** (2006.01); **B01D 53/86** (2006.01); **B01D 53/94** (2006.01); **C01B 21/38** (2006.01)

CPC (source: EP US)

B01D 53/8625 (2013.01 - EP US); **B01D 53/8628** (2013.01 - EP US); **C01B 21/38** (2013.01 - EP US); Y02C 20/10 (2013.01 - EP US)

Citation (search report)

[XPD] EP 0457059 A1 19911121 - DEGUSSA [DE]

Cited by

CN112169560A; DE102007027676A1

Designated contracting state (EPC)

AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

US 5366711 A 19941122; AT E127707 T1 19950915; CA 2081818 A1 19930503; CZ 327592 A3 19930616; DE 59203681 D1 19951019; DK 0548499 T3 19960205; EP 0548499 A1 19930630; EP 0548499 B1 19950913; JP H05212247 A 19930824

DOCDB simple family (application)

US 96806792 A 19921030; AT 92118162 T 19921023; CA 2081818 A 19921030; CS 327592 A 19921030; DE 59203681 T 19921023; DK 92118162 T 19921023; EP 92118162 A 19921023; JP 29006592 A 19921028